

Sub P1  
cont.  
Cm 7

wherein m and n have values of 1 to 99 and 99 to 1 respectively and a crosslinking agent for crosslinking the copolymer to a fibrous web at a creping process drying surface, said agent being selected from zirconium compounds wherein the zirconium has a valence of +4, wherein the creping adhesive composition exhibits a peel force of at least about 300 grams per 12 inches of fibrous web.

### REMARKS

Claims 112-117 are currently pending in this application. Claim 112 has been amended to address the Section 112 rejections and objection raised in the pending Office Action. The amendments to claim 112 are merely relate to form, and do not constitute new matter or narrowing amendments. Reconsideration of the claims is requested in light of these amendments and the following remarks.

#### Rejections Under 35 U.S.C. § 112

All of the claims stand rejected under Section 112 for failing to particularly point out and distinctly claim the subject matter. Applicants respectfully request reconsideration of those rejections in light of these Amendments and the following remarks.

The Office points out the lack of antecedent basis for the recitation of "the fibrous web" and the indefiniteness of the term "value of +4," both in claim 112. Claim 112 has been amended to address these rejections. The claim now recites "crosslinking the copolymer to a fibrous web at a creping process drying surface." A "creping process" is a term well-known to those of skill in the art, so that the terms "fibrous web" and "drying

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surface" would be understood when placed in the context of a creping process. The term "value" has been changed to "valence" as suggested by the Examiner.

The claims also stand rejected for the recitation in claim 112 of "a peel force . . ." as the Office Action states "it is not readily ascertainable as to how such further limits the antecedently recited "creping adhesive." Applicants respectfully traverse this rejection and request reconsideration. A "creping adhesive" is an adhesive that would be useful in the creping process to adhere a fibrous web to the drying surface, which is typically a Yankee dryer. A creping adhesive would preferably hold the fibrous web to the dryer surface for a limited period of time and then release the dried product when sufficient force is applied to that product. The force required to peel the dried product away from the creping adhesive is known as the "peel force." The limitation in claim 12 simply quantifies a minimum peel force that the composition should exhibit, which therefore further limits the generic recitation of "creping adhesive."

The Office further objected to the claims on the grounds that a box was drawn around the structural figure shown in claim 112. The box was a word processing error, and was not intended to be part of the claim. The box has been removed from the present version of the claim.

### **Provisional Double Patenting Rejection**

Applicants acknowledge the Office's provisional rejection for obviousness-type double patenting in light of co-pending application No. 09/496,383, and ask that the Examiner hold this provisional rejection in abeyance until claims in the other application become allowed and issue.

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**Rejections Under 35 U.S.C § 103(a)**

All of the claims stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,281,307 issued to Smigo et al. ("*Smigo*"), in combination with U.S. Patent No. 5,246,544 issued to Hollenberg et al. ("*Hollenberg*"). The Office alleges that *Smigo* discloses the use of a cross-linking agent in combination with polyvinyl alcohol-vinyl amine copolymers, and that *Hollenberg* discloses the use of zirconium compounds as cross-linking agents. The Office further alleges that the combination of the zirconium compounds of *Hollenberg* with the copolymers of *Smigo* would result in a compound useful as a creping adhesive "since the modified composition of Smigo et al is essentially the same as and made in essentially the same manner as the claimed adhesive composition." Applicants respectfully traverse this rejection and request reconsideration in light of the following remarks.

Contrary to the Office's assertion, the hypothetical modified composition of *Smigo* is not made in essentially the same manner as the claimed adhesive composition, and this manufacturing difference prevents the modified composition of *Smigo* from operating as a creping adhesive exhibiting the requisite peel force. This fact has been well documented in the record, specifically in the declaration of inventor Phuong Luu dated February 2, 2000, which is of record in the parent application and submitted with this response for the Examiner's convenience. If the recited components are not mixed together in an appropriate manner, then the resulting composition will not be a creping adhesive exhibiting the required peel force.

As set forth in paragraph 6 of the Luu Declaration, the components of the present invention simply will not form a useful creping adhesive unless they are mixed

appropriately. While different mixing methods may exist which provide a useful creping adhesive, the method disclosed in the present specification is spraying the two components from separate sources directly onto a heated Yankee dryer. When formed in this way, the resulting composition is a useful creping adhesive exhibiting the recited peel force. Combining the components prior to contacting them with the heated Yankee dryer will result in a gel that is not useful as a creping adhesive. *Hollenberg* discloses mixing the compounds prior to contacting the Yankee dryer, and *Smigo* does not even discuss a Yankee dryer. The Luu Declaration therefore provides rebuttal evidence that the suggested modification of *Smigo* would not result in a compound having the claimed characteristics as asserted by the Office.

Furthermore, Applicants submit that modifying *Smigo* to use the zirconium-containing compounds of *Hollenberg* would not result in a compound useful as a creping adhesive even if mixed in an appropriate manner. *Smigo* does not teach the use of a sufficient amount of crosslinking agent to provide creping properties to the copolymer, thus, even if one skilled in the art utilized the zirconium compounds of *Hollenberg* in the teachings of *Smigo*, there would not be sufficient crosslinking to form an adhesive. For example, in *Smigo*'s "Sample Preparation" the solution is poured into a pan. Since crosslinked polymers cannot be poured, *Smigo* does not appear to provide for sufficient crosslinking.

Finally, if the Office is relying upon an assumption that the recited creping adhesive characteristics are inherent in the modified *Smigo* compositions, then such rejection is improper and should be withdrawn. Obviousness cannot be predicated upon inherent advantages. *In re Adams*, 148 USPQ 742 (CCPA 1966). On the other

hand, if the Office is arguing that the claimed composition results from an obvious modification to the *Smigo* compositions, then the Office should explain how one skilled in the art would be motivated to make the hypothetical modification, and why the claimed characteristics would be an expected result of such hypothetical modification. Since the compositions of *Smigo* and *Hollenberg* are not creping adhesives, Applicants respectfully submit that one skilled in the art would not expect the combination of those two references to form a creping adhesive even if mixed in an appropriate manner.

Applicants respectfully submit that the Office has failed to make a *prima facie* case of obviousness, and, further, Applicants have provided rebuttal evidence showing that the modifications to the prior art would not result in a creping adhesive exhibiting the appropriate peel force. Absent any contrary evidence, the Examiner should find that the Applicants have successfully rebutted any *prima facie* case of obviousness.

### Conclusion

In view of the foregoing remarks, Applicants request the entry of this Amendment, the Examiner's reconsideration and continued examination of the application, and the timely allowance of the pending claims.

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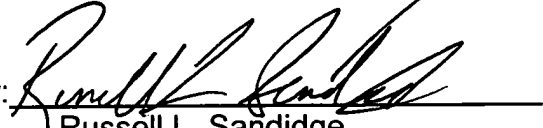
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Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: October 21, 2002

By:   
Russell L. Sandidge  
Reg. No. 36,911

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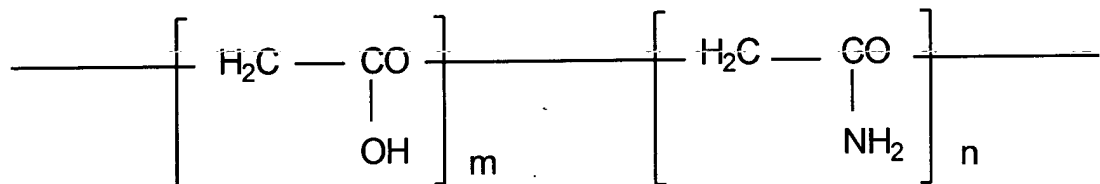
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**APPENDIX**

**IN THE CLAIMS:**

Please amend claim 112 as follows:

112. (Once Amended) A creping adhesive composition comprising polyvinyl alcohol – vinyl amine copolymer of the following structure:



wherein m and n have values of 1 to 99 and 99 to 1 respectively and a crosslinking agent for crosslinking the [polymer] copolymer to [the] a fibrous web at the drying surface of a creping process, said agent being selected from zirconium compounds wherein the zirconium has a [value] valence of +4, wherein the creping adhesive composition exhibits a peel force of at least about 300 grams per 12 inches of fibrous web.

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OCT 30 2002  
TC 1700

PATENT  
Attorney Docket No. 1775-1A

IN THE U.S. PATENT AND TRADEMARK OFFICE

APPLICANT:       Phuong Van Luu, et al.       GROUP:       1713  
SERIAL NO.:       Unassigned       EXAMINER: Judy M. Reddick  
FILED:            February 2, 2000  
FOR:              CROSSLINKABLE CREPING ADHESIVE FORMULATIONS

**DECLARATION UNDER 37 C.F.R. §1.132**

Assistant Commissioner for Patents  
Washington D.C. 20231

February 2, 2000

Sir:

I, Phuong Van Luu, declare as follows:

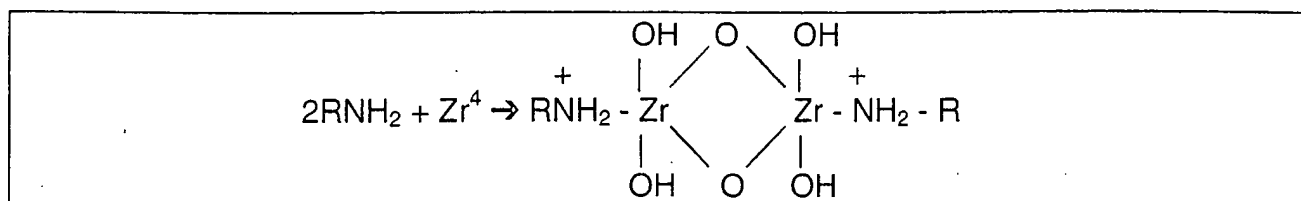
1. I am one of the co-inventors of this Application and U.S. Application Serial No. 08/955,733, filed on October 22, 1997, and its parent application Serial No. 08/443,941 filed on May 18, 1995. I am thoroughly familiar with the contents of all three Applications, and the prosecution of the parent applications before the United States Patent and Trademark Office and the references cited therein.
2. I have a BS Degree in Chemistry (1970) and a MS degree in Physical Organic Chemistry (1974), both from the University of Saigon-Vietnam.
3. I have been employed by Fort James Corporation, including its predecessor James River Corporation, since 1989, first as a Senior Technician in the Department of Towel and Tissue Manufacturing Technology, and currently as a Research Scientist in the Department of Papermaking/Converting Process Development. I am co-inventor of several U.S. patents related to Yankee adhesive and Tissue softness:



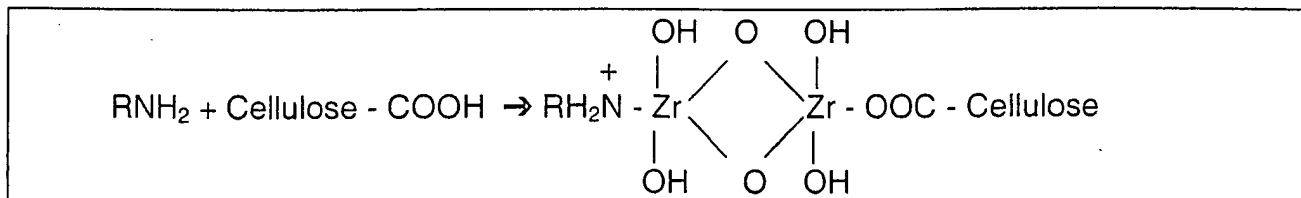
4. I am thoroughly familiar with the Office Action which issued on Serial No. 08/443,941 application on July 15, 1997, where the Examiner rejected the claimed subject matter as being obvious over the teachings of Smigo et al., U.S., Patent No. 5,281,307, in view of Miyosawa, U.S. Patent No. 4,016,179, or Hollenberg et al., U.S. Patent No. 5,246,544, and in the advisory action dated October 8, 1997, wherein the Examiner dropped Miyosawa U.S. Patent 4,016,179 as a reference.

5. To summarize, the present invention provides creping adhesives which are friendly to the environment since they do not produce any chlorine containing pollutants as by products. The creping adhesives of this invention are formed on the Yankee surface from zirconium compounds having a valence of four and organic polymers having amine moieties wherein the zirconium compounds function as crosslinking agents as is set forth in the claims.

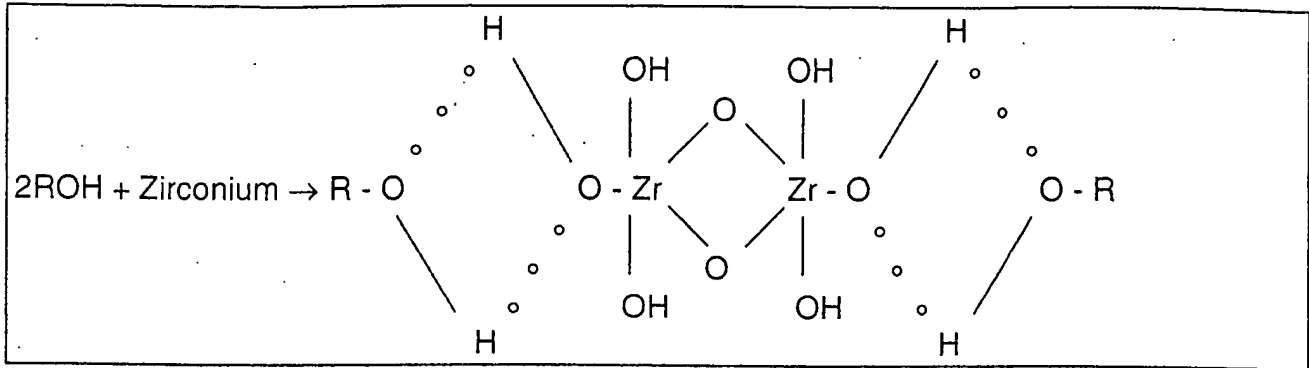
The zirconium compounds, having a valence of four, crosslink preferably with the amine functionality of the organic polymer. That reaction is set forth hereon as:



The reaction with the cellulose fiber is formulated as follows:



The zirconium crosslinking agent also reacts with alcohol moiety of the organic polymer according to the following equation:



Thus the zirconium compound crosslinking agents facilitate the crosslinking of the organic polymer to the cellulose fiber and also crosslink the organic polymer to itself through the amine or the hydroxyl moiety.

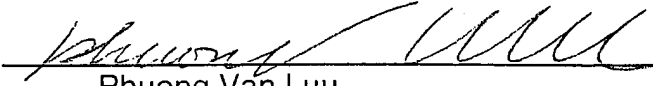
6. The remaining references in Serial No. 08/955,733 are Smigo, U.S. Patent No. 5,232,553, and Hollenberg et al., U.S. Patent 5,246,544.

In my expert opinion, none of the cited references render the claims of the instant application obvious. The Smigo reference discloses certain polyvinylamines suitable for reducing fines in the papermaking process. The Smigo reference is specifically directed to retaining fines from recycle of waste papers. The Hollenberg U.S. Patent 5,246,544 is directed to adhesives prepared prior to the application of the components to the Yankee surface. The Hollenberg et al. reference does not disclose polymers having amine moieties. The adhesives claimed herein are prepared on the Yankee surface. If they were prepared as set forth in the process disclosed by Hollenberg et al. reference of record, the whole composition would gel and could not be used as a creping adhesive. Thus, in my expert opinion, the aforementioned references of record do not render the claims 1 through 5 obvious within the meaning of 35 U.S.C. 103.

7. The Hollenberg et al. U.S. Patent 5,246,544 is further unable to support a 35 U.S.C. 103 rejection since nitrogen containing softeners were not utilized in the Hollenberg

process. Thus, in my expert opinion, in addition to the reasons set forth in Paragraph 6, U.S. Patents 5,232,553 and 5,246,544 do not render the claims covering such softeners obvious.

8. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signature   
Phuong Van Luu

Date 02/02/00 Country of Citizenship U.S.

Residence 2223 E. Calumet Street, Appleton WI 54915

and Post Office Address same

J:\PATENT\PATENT\DECL&POA\1775-1A Declaration



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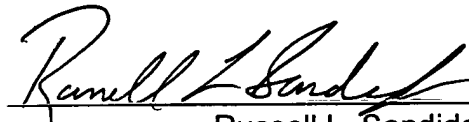
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U.S. Serial No. 09/904,102  
Attorney Docket No. 2734.0482-05

**CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8**

I hereby certify that this correspondence is being deposited with the United States Postal Services under 37 C.F.R. § 1.8 on the date indicated below and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

on October 21, 2002  
Date

  
\_\_\_\_\_  
Russell L. Sandidge

**Enclosures:**

1. Certificate of Mail under C.F.R. § 1.8 – 1 page
2. Petition for 1 month Extension of Time – 1 page
3. Amendment and Response with Appendix including Declaration Under 37 C.F.R. § 1.132 of Phuong Van Luu – 12 pages
4. Postcard

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